Amendments to the Claims:

1. (withdrawn) An apparatus for providing Media Access Control (MAC) based transmission in a Wave Division Multiplexing (WDM) optical network, comprising:

a first wavelength based multiplexing/demultiplexing device configured to communicate on a first fiber ring, said first wavelength based multiplexing/demultiplexing device comprising a first add module and a first drop module, wherein said first drop module is adapted to drop a first channel from a first ingress multi-wavelength input transmitted over said first fiber ring and wherein said first add module is adapted to add a second channel onto a first egress multi-wavelength output transmitted over said first fiber ring;

a second wavelength based multiplexing/demultiplexing device configured to communicate on a second fiber ring, said second wavelength based multiplexing/demultiplexing device comprising a second add module and a second drop module, wherein said second drop module is adapted to drop a third channel from a second ingress multi-wavelength input transmitted over said second fiber ring and wherein said second add module is adapted to add a fourth channel onto a second egress multi-wavelength output transmitted over said second fiber ring;

a first MAC module comprising a first transmitter and a first receiver, wherein said first transmitter is adapted to provide said fourth channel added by said second add module and wherein said first receiver is adapted to receive said first channel dropped by said first drop module such that said first MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring; and

a second MAC module comprising a second transmitter and a second receiver, wherein said second transmitter is adapted to provide said second channel added by said first add module and wherein said second receiver is adapted to receive said third channel dropped by said second drop module such that said second MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

2. (withdrawn) The apparatus according to claim 1, wherein said first channel, said second channel, said third channel and said fourth channel comprise the same optical wavelength.

3. (withdrawn) The apparatus according to claim 1, wherein the optical wavelength used by said first channel and said second channel is different than that used by said third channel and said fourth channel.

4. (withdrawn) The apparatus according to claim 1, wherein the optical wavelength used by said first channel, said second channel, said third channel and said fourth channel are all different.

5. (withdrawn) The apparatus according to claim 1, wherein said first MAC module is connected to an Ethernet device.

6. (withdrawn) The apparatus according to claim 5, wherein said Ethernet device comprises an Ethernet switch.

7. (withdrawn) The apparatus according to claim 1, wherein said second MAC module is connected to an Ethernet device.

8. (withdrawn) The apparatus according to claim 6, wherein said Ethernet device comprises an Ethernet switch.

9. (withdrawn) The apparatus according to claim 1, further comprising one or more additional sets, each set comprising a first wavelength based multiplexing/demultiplexing device, second wavelength based multiplexing/demultiplexing device, first MAC module and second MAC module, whereby each set added is assigned a unique operating wavelength.

10. (withdrawn) The apparatus according to claim 1, wherein said first wavelength based multiplexing/demultiplexing device and said second wavelength based multiplexing/demultiplexing device comprise an optical add/drop multiplexer (OADM).

11. (withdrawn) A method of providing Media Access Control (MAC) based transmission in a Wave Division Multiplexing (WDM) optical network, said method comprising the steps of:

providing a first wavelength based multiplexing/demultiplexing device configured to communicate on a first fiber ring, said first wavelength based

multiplexing/demultiplexing device comprising a first add module and a first drop module;

providing a second wavelength based multiplexing/demultiplexing device configured to communicate on a second fiber ring, said second wavelength based multiplexing/demultiplexing device comprising a second add module and a second drop module;

providing a first MAC module comprising a first transmitter and a first receiver;

providing a second MAC module comprising a second transmitter and a second receiver;

dropping a first channel received from a first ingress multi-wavelength input received by said first drop module in said first wavelength based multiplexing/demultiplexing device to said first receiver in said first MAC module;

adding a fourth channel from said first transmitter in said first MAC to a second egress multi-wavelength output transmitted by said second add module in said second wavelength based multiplexing/demultiplexing device;

dropping a third channel received from a second ingress multi-wavelength input received by said second drop module in said second wavelength based multiplexing/demultiplexing device to said second receiver in said second MAC module;

adding a second channel from said second transmitter in said second MAC to a first egress multi-wavelength output transmitted by said first add module in said first wavelength based multiplexing/demultiplexing device;

wherein said second MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring; and

wherein said first MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

12. (withdrawn) The method according to claim 11, wherein said first channel, said second channel, said third channel and said fourth channel comprise the same optical wavelength.

13. (withdrawn) The method according to claim 11, wherein the optical wavelength used by said first channel and said second channel is different than that used by said third channel and said fourth channel.

14. (withdrawn) The method according to claim 11, wherein the optical wavelength used by said first channel, said second channel, said third channel and said fourth channel are all different.

15. (withdrawn) The method according to claim 11, wherein said first MAC module is connected to an Ethernet device.

16. (withdrawn) The method according to claim 15, wherein said Ethernet device comprises an Ethernet switch.

17. (withdrawn) The method according to claim 11, wherein said second MAC module is connected to an Ethernet device.

18. (withdrawn) The method according to claim 17, wherein said Ethernet device comprises an Ethernet switch.

19. (withdrawn) The method according to claim 11, further comprising the step of adding one or more additional sets, each set comprising a first wavelength based multiplexing/demultiplexing device, second wavelength based multiplexing/demultiplexing device, first MAC module and second MAC module, whereby each set added is assigned a unique operating wavelength.

20. (withdrawn) The method according to claim 11, wherein said first wavelength based multiplexing/demultiplexing device and said second wavelength based multiplexing/demultiplexing device comprise an optical add/drop multiplexer (OADM).

21. (currently amended) An apparatus for providing Media Access Control (MAC) based transmission in a ~~Wave~~ Wavelength Division Multiplexing (WDM) optical network, comprising:

a first ~~wavelength based multiplexing/demultiplexing device and~~ optical add/drop multiplexer (OADM) comprising a first add module and a first drop module, wherein said first drop module is adapted to receive ~~drop a first channel from~~ a first ingress multi-wavelength input transmitted over a first fiber ring and to drop a first channel therefrom, and wherein said first add module is adapted to receive over a single optical fiber a multi-wavelength output of a second drop module and to add a second channel thereto to generate [[onto]] a second egress multi-wavelength output ~~transmitted~~ for transmission over a second fiber ring;

~~a second wavelength based multiplexing/demultiplexing device comprising a second add module and a second drop module, wherein said second drop module is adapted to drop a third channel from a second ingress multi-wavelength input transmitted over said second fiber ring and wherein said second add module is adapted to add a fourth channel onto said first egress multi-wavelength output transmitted over said first fiber ring;~~

a second wavelength based multiplexing/demultiplexing device comprising a second add module and a second drop module, wherein said second add module is adapted to receive over a single optical fiber the multi-wavelength output of said first drop module and to add a fourth channel to said thereto to generate a first egress multi-wavelength output transmitted over said first fiber ring, and wherein said second drop module is adapted to receive a second ingress multi-wavelength input transmitted over said second fiber ring and to drop a third channel therefrom;

a first MAC module comprising a first transmitter and a first receiver, wherein said first transmitter is adapted to provide said second channel added by said second add module and wherein said first receiver is adapted to receive said first channel dropped by said first drop module such that said first MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring; and

a second MAC module comprising a second transmitter and a second receiver, wherein said second transmitter is adapted to provide said fourth channel added by said second add module and wherein said second receiver is adapted to receive said third channel dropped by said second drop module such that said second MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

22. (canceled)

23. (original) The apparatus according to claim 21, wherein said first channel, said second channel, said third channel and said fourth channel comprise the same optical wavelength.

24. (original) The apparatus according to claim 21, wherein the optical wavelength used by said first channel and said second channel is different than that used by said third channel and said fourth channel.

25. (original) The apparatus according to claim 21, wherein the optical wavelength used by said first channel, said second channel, said third channel and said fourth channel are all different.

26. (original) The apparatus according to claim 21, wherein said first MAC module is connected to an Ethernet device.

27. (original) The apparatus according to claim 26, wherein said Ethernet device comprises an Ethernet switch.

28. (original) The apparatus according to claim 21, wherein said second MAC module is connected to an Ethernet device.

29. (original) The apparatus according to claim 28, wherein said Ethernet device comprises an Ethernet switch.

30. (currently amended) The apparatus according to claim 21, further comprising one or more additional sets, each set comprising a first ~~wavelength based multiplexing/demultiplexing device~~ OADM, second ~~wavelength based multiplexing/demultiplexing device~~ OADM, first MAC module and second MAC module, whereby each set added is assigned a unique operating wavelength.

31. (currently amended) A method of providing Media Access Control (MAC) based transmission in a ~~Wave~~ Wavelength Division Multiplexing (WDM) optical network, said method comprising the steps of:

providing a first ~~wavelength based multiplexing/demultiplexing device~~ optical add/drop multiplexer (OADM) comprising a first add module and a first drop module;

providing a second ~~wavelength based multiplexing/demultiplexing device~~ OADM comprising a second add module and a second drop module;

providing a first MAC module comprising a first transmitter and a first receiver;

providing a second MAC module comprising a second transmitter and a second receiver;

connecting said first add module to a second fiber ring and said first drop module to a first fiber ring;

connecting said second add module to said first fiber ring and said second drop module to said second fiber ring;

dropping a first channel in a first ingress multi-wavelength input received over said first fiber ring by said first drop module in said first ~~wavelength based multiplexing/demultiplexing device~~ OADM to said first receiver in said first MAC module;

adding a second channel from said first transmitter in said first MAC to a second egress multi-wavelength output transmitted over said second fiber ring via said first add module in said first ~~wavelength based multiplexing/demultiplexing device~~ OADM;

dropping a third channel in a second ingress multi-wavelength input received over said second fiber ring by said second drop module in said second ~~wavelength based multiplexing/demultiplexing device~~ OADM to said second receiver in said second MAC module;

adding a fourth channel from said second transmitter in said second MAC to a first egress multi-wavelength output transmitted over said first fiber ring via said second add module in said second ~~wavelength based multiplexing/demultiplexing device~~ OADM;

wherein said second MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring; and

wherein said first MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

32. (original) The method according to claim 31, wherein said first channel, said second channel, said third channel and said fourth channel comprise the same optical wavelength.

33. (original) The method according to claim 31, wherein the optical wavelength used by said first channel and said second channel is different than that used by said third channel and said fourth channel.

34. (original) The method according to claim 31, wherein the optical wavelength used by said first channel, said second channel, said third channel and said fourth channel are all different.

35. (original) The method according to claim 31, wherein said first MAC module is connected to an Ethernet device.

36. (original) The method according to claim 35, wherein said Ethernet device comprises an Ethernet switch.

37. (original) The method according to claim 31, wherein said second MAC module is connected to an Ethernet device.

38. (original) The method according to claim 37, wherein said Ethernet device comprises an Ethernet switch.

39. (currently amended) The method according to claim 31, further comprising the step of adding one or more additional sets, each set comprising a first ~~wavelength based multiplexing/demultiplexing device~~ OADM, second ~~wavelength based multiplexing/demultiplexing device~~ OADM, first MAC module and second MAC module, whereby each set added is assigned a unique operating wavelength.

40. (original) The method according to claim 31, wherein said first wavelength based multiplexing/demultiplexing device and said second wavelength based multiplexing/demultiplexing device comprise an optical add/drop multiplexer (OADM).

41. (currently amended) A method of providing Media Access Control (MAC) based transmission in an optical network employing ~~Wave~~ Wavelength Division Multiplexing (WDM), said method comprising the steps of:

providing a ~~wavelength based multiplexing/demultiplexing device~~ optical add/drop multiplexer (OADM) comprising an add module and a drop module;

providing a MAC device comprising a transmitter and a receiver;

connecting said add module to a first fiber ring and said drop module to a second fiber ring;

dropping a first channel in an ingress multi-wavelength input received over said second fiber ring by said drop module to said receiver in said MAC module;

adding a second channel from said transmitter in said MAC to an egress multi-wavelength output transmitted over said first fiber ring via said add module; and

wherein said MAC transmits and receives data on the same segment of said first fiber ring and said second fiber ring.

42. (currently amended) A method of providing Media Access Control (MAC) based transmission in an optical network employing ~~Wave~~ Wavelength Division Multiplexing (WDM), said method comprising the steps of:

providing a first ~~wavelength based multiplexing/demultiplexing device~~ optical add/drop multiplexer (OADM) located in a first node, said first ~~wavelength based multiplexing/demultiplexing device~~ OADM comprising a first add module and a first drop module;

providing a second ~~wavelength based multiplexing/demultiplexing device~~ OADM located in a second node, said second ~~wavelength based multiplexing/demultiplexing device~~ OADM comprising a second add module and a second drop module;

providing a first MAC device comprising a first transmitter and a first receiver, said first MAC device located in said first node;

providing a second MAC device comprising a second transmitter and a second receiver, said second MAC device located in said second node;

connecting said first add module to a first fiber ring and said first drop module to a second fiber ring;

connecting said second add module to said second fiber ring and said second drop module to said first fiber ring;

dropping a first channel in a second ingress multi-wavelength input received over said second fiber ring by said first drop module in said first node to said first receiver in said first node;

adding a second channel from said first transmitter in said first MAC device to a first egress multi-wavelength output transmitted over said first fiber ring via said first add module in said first node;

dropping a third channel in a first ingress multi-wavelength input received over said first fiber ring by said second drop module in said second node to said second receiver in said second node;

adding a fourth channel from said second transmitter in said second node to a second egress multi-wavelength output transmitted over said second fiber ring via said second add module in said second node; and

wherein said first MAC device in said first node transmits and receives data to and from said second MAC device in said second node on the same segment of said first fiber ring and said second fiber ring.

43. (currently amended) An apparatus for providing direct Media Access Control (MAC) to MAC based communications in a ~~Wave~~ Wavelength Division Multiplexing (WDM) ring based optical network, comprising:

a first Optical Add Drop ~~Multilpexer~~ Multiplexer (OADM) in a first node having an add module coupled to a first ring and a drop module coupled to a second ring;

a second Optical Add Drop ~~Multilpexer~~ Multiplexer (OADM) in a second node having a drop module coupled to said first ring and an add module coupled to said second ring;

a first Media Access Control (MAC) having a transmitter coupled to the add module of said first OADM and a receiver coupled to the drop module of said first OADM;

a second Media Access Control (MAC) having a transmitter coupled to the add module of said second OADM and a receiver coupled to the drop module of said second OADM; and

wherein the connection between said first OADM in said first node and said second OADM in said second node, over said first ring and said second ring, enable direct communications between said first MAC and said second MAC.

44. (currently amended) A method of providing direct Media Access Control (MAC) to MAC based communications in a ~~Wave~~ Wavelength Division Multiplexing (WDM) ring based optical network, comprising:

providing a first add module and a first drop module in a first node, wherein said first add module and said first drop module are placed on separate rings traveling in opposite directions;

providing a first MAC having a first transmitter and a first receiver, wherein said first receiver is coupled to said first drop module and said first transmitter is coupled to said first add module;

providing a second add module and a second drop module in a second node wherein said second add module and said second drop module are placed on separate rings traveling in opposite directions;

providing a second MAC having a second transmitter and a second receiver, wherein said second receiver is coupled to said second drop module and said second transmitter is coupled to said second add module; and

wherein said first add module is in communication with said second drop module and said second add module is in communication with said first drop module so as to enable direct MAC to MAC communications between said first MAC and said second MAC.